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| PRE-APPEAL BRIEF REQUEST FOR REVIEW | | Docket Number Q92902 | |
| Mail Stop AF Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450 | Application Number | Filed | |
| | 10/572,779 | March 21, 2006 | |
| | First Named Inventor | | |
| | Hiroyuki TANAKA | | |
| | Art Unit | Examiner | |
| | 1796 | Henry S. Hu | |
| <p style="text-align: center;">WASHINGTON OFFICE 23373 CUSTOMER NUMBER</p> | | | |
| <p>Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.</p> <p>This request is being filed with a notice of appeal</p> <p>The review is requested for the reasons(s) stated on the attached sheet(s). Note: No more than five (5) pages may be provided.</p> <p><input checked="" type="checkbox"/> I am an attorney or agent of record.</p> <p>Registration number 57,426</p> <p style="text-align: right;"><u>Hui Chen Wauters</u> Signature</p> <p style="text-align: right;"><u>Hui C. Wauters</u> Typed or printed name</p> <p style="text-align: right;"><u>(202) 293-7060</u> Telephone number</p> <p style="text-align: right;"><u>May 5, 2010</u> Date</p> | | | |

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Docket No: Q92902

Hiroyuki TANAKA, et al.

Appln. No.: 10/572,779

Group Art Unit: 1796

Confirmation No.: 9453

Examiner: Henry S. Hu

Filed: March 21, 2006

For: PERFLUOROELASTOMER SEAL MATERIAL

PRE-APPEAL BRIEF REQUEST FOR REVIEW

MAIL STOP AF - PATENTS

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

Pursuant to the Pre-Appeal Brief Conference Program, and further to the Examiner's Final Office Action dated February 5, 2010, Appellants file this Pre-Appeal Brief Request for Review. This Request is also accompanied by the filing of a Notice of Appeal.

Appellants turn now to the rejections at issue:

Claims 5-9 are pending and on appeal.

Claims 5-9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Saito et al (EP 1,209,175, "Saito") or Kawasaki et al (US 7,309,743, "Kawasaki '743") in view of a combination of four references including Anolick et al (US 5,478,905, "Anolick '905"), Anolick et al (US 5,637,663, "Anolick '663"), Amin et al (US 5,444,116, "Amin '116") and Amin et al (US 5,461,107, "Amin '107"), and further in view of a combination of Yamato et al (US 7,125,598, "Yamato") and Kawasaki et al (US 6,878,778, "Kawasaki '778").

This rejection should be reversed because the cited references do not disclose or render obvious the present invention, either alone or in combination.

The Examiner states that the primary references, Saito and Kawasaki '743, in combination or alone, apply the step of vulcanization on molded articles such as seal or seal-containing parts so as to improve their amine-resistance ([0084]-[0086] of Saito; and cols. 11-13 of Kawasaki); which step would add some degree of polymer crosslinking in the molded article.

The Examiner acknowledges that Saito and Kawasaki '743, in combination or alone, are silent about three things including: (A) the molded perfluoroelastomer is pre-crosslinked by specified crosslinking system(s) other than polyamine vulcanization, (B) applying the step of immersing the molded article in a specific solvent at 60°C for 70 hours, and (C) the motivation to do both (A) and (B).

With respect to (A), the Examiner newly cited Yamato and Kawasaki '778 as assertedly teaching that in the course of crosslinking molded fluoroelastomer or perfluoroelastomer, polyamine crosslinking is functionally equivalent and interchangeable with other crosslinking systems such as imidazole crosslinking system, triazine crosslinking system, oxazole crosslinking system and thiazole crosslinking system. The Examiner cited Yamato at col. 6, lines 17-21; and Kawasaki '778 at col. 1, lines 27-60 and col. 2, line 1 - col. 5, line 24.

With respect to (B) and (C), the Examiner took the position that a combination of Amin '116 and Amin '107 teaches immersing a molded seal article in organic solvent such as perfluorotributylamine and that it would have been obvious to modify Saito and Kawasaki '743's process of making molded sealing articles by adding the extra step of immersing the already-molded article in a specific solvent such as perfluorotributylamine because the leaking of "uncoupled and non-crosslinked" fluoropolymer is undesirable. Further, the Examiner took the

position that both Anolick '905 and Anolick '663 teach that non-crosslinked fluoropolymers can be readily soluble in perfluorinated solvent and that the "pre"-removal of "uncoupled and non-crosslinked" fluoropolymer from the already-molded articles can be achieved effectively.

Appellants respectfully traverse.

First, the Examiner has not provided evidence to support his assertion that "the leaking of 'uncoupled and non-crosslinked' fluoropolymer is undesired.

Second, **Saito** discloses a fluorine-containing elastomeric terpolymer which consists of ethylene unit, hexafluoropropylene unit and vinylidene fluoride unit. That is, Saito does not teach a perfluoroelastomer. Accordingly, the perfluoroelastomer seal material of the present invention cannot be obtained by combining Saito with the secondary references. Further, Saito does not recognize the problem caused by the existence of the component having a low molecular weight and uncrosslinked polymers.

Kawasaki '743 teaches that perfluoroelastomer is widely used as a sealing material to be used under hard environment because of excellent chemical resistance, solvent resistance and heat resistance thereof. That is, Kawasaki '743 recognizes that fluorine-containing elastomers already have excellent chemical resistance, solvent resistance and heat resistance, such that there is no motivation to further improve these properties. Therefore, there is no teaching or suggestion in Kawasaki '743 to adopt the step of the present invention to solve the problem caused by the existence of the component having a low molecular weight and uncrosslinked polymers.

Anolick '905 and **Anolick '663** merely disclose the properties of amorphous tetrafluoroethylene-hexafluoropropylene (TFE-HFP) dipolymer which can be readily dissolved in perfluorinated solvent (abstract; Anolick '905 at col. 5, lines 27-34; Anolick '663 at col. 9,

lines 30-41). There is no teaching or suggestion in Anolick '905 and Anolick '663 to use this property to remove the component having a low molecular weight and uncrosslinked polymers from a crosslinked molded article. Further, one skilled in the art would not have been motivated to immerse a molded article for sealing in perfluorotributylamine in view of the teachings of Anolick '905 and Anolick '663, because the molded article might dissolve in perfluorotributylamine. In fact, Anolick '905 and Anolick '663 teach away from immersing a molded article for sealing in perfluorotributylamine.

Amin '116 and **Amin '107** disclose that "Swelling may cause the seal to expand out of its retaining grooves and cause leaks in a system" (col. 1, lines 38-40 of Amin '116). This disclosure relates to the leak of a substance which is to be sealed and is caused by degrading the sealing property; it does not relate to the leak of the substance of "uncoupled and non-crosslinked fluoropolymer."

Further, the immersion testing in Examples of Amin '116 and Amin '107 is conducted to measure the percent change in tensile strength and percentage elongation after immersing the molded article. That is, perfluorotributylamine is used as one of the strong erosive compound and is not used for the purpose of immersing the component having a low molecular weight and uncrosslinked polymer. Also, the subject matter of Amin '116 and Amin '107 relates to molded articles before treatment with perfluorotributylamine and not molded articles after treatment with perfluorotributylamine as in the present invention. Still further, amine-resistance refers to a degree of characteristic change when a polymer is swelled or solved in an amine compound. Therefore, one skilled in the art would not have been motivated to modify Saito and Kawasaki's process of making molded sealing articles by adding the extra step of immersing the already-molded article in perfluorotributylamine.

Third, none of the cited references, including **Yamato et al** and **Kawasaki '778**, teaches or suggests adopting a step of treating a perfluoroelastomer molded article obtained by crosslinking a perfluoroelastomer through specific crosslinking systems with specific solvent to improve the adhesion strength, and stain, corrosion and color change of a contact surface with the sealing material by removing the component having a low molecular weight and an uncrosslinked polymer. See, page 3, lines 11-15 and Table 1 at page 37 of the specification.

For the above reasons, the present claims are not obvious and are patentable over the cited references, either alone or in combination. Accordingly, Appellants respectfully request reversal of the §103(a) rejection based on the cited references.

Allowance is respectfully requested.

Respectfully submitted,

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